

REMARKS

Claims 1, 3-7, and 12-20 are pending in the application. Applicant respectfully requests reconsideration of this application.

Rejection of Claims 1, 3-4, 7, 12-14, and 16-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publ. No. 2004/0147276 (Gholmieh) in view of U.S. Pat. No. 6,775,252 (Bayley)

The Office Action has cited Gholmieh (U.S. Publ. No. 2004/0147276) for a 35 U.S.C. § 103(a) rejection of claims 1-4, 7-9, 11-14, and 16-18. The filing date for the cited reference Gholmieh (U.S. Publ. No. 2004/0147276) is December 16, 2003 which is three months after the September 16, 2003 filing date of the application under consideration. Therefore, Applicant understands that the related provisional patent application serial no. 60/433937, filed on December 17, 2002, is the true basis for the rejection. Applicant has reviewed and considered Gholmieh-Provisional (U.S. Appln. No. 60/433937) as well as Gholmieh (U.S. Publ. No. 2004/0147276).

Applicant respectfully submits that the combination of Gholmieh and Bayley does not teach or suggest all the claim limitations as set forth in independent claims 1, 12, and 16. For example, independent claims 1, 12, and 16 recite “wherein the *communication channel variance condition* is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate *within an adaptive measurement interval*” and “establishing, by the mobile station, a headroom value *based on the communication channel variance condition*” which are not taught or suggested in the combination of Gholmieh and Bayley.

Gholmieh is directed towards a method for reducing signaling associated with frequent reporting of power headroom. According to Gholmieh, the radio base station (RBS) receives infrequent periodic full reports from a mobile station that indicates the current power headroom of the mobile station. The RBS tracks changes in the mobile station's headroom over the interval between full reports based on reverse link power control commands sent by it, or based on power control decision feedback from the mobile station. See Gholmieh Abstract.

Bayley is directed towards a method for adjusting a search window size by a remote unit in a slotted mode wireless communication system. Bayley suggests measuring signal strength of a pilot signal of a preferred base station and adjusting the size of a search window based on the

measurement. The remote unit uses the adjusted search window size to search for other base stations. See Bayley Abstract and col. 15, line 55 to col. 6, line 7.

The Office Action page 4, paragraphs 2-3 state that “Gholmieh does not teach determining, by the mobile station, a communication channel variance condition, wherein the communication channel variance condition is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval. Bayley, which also teaches a CDMA system, teaches determining, by a mobile station, a communication channel variance condition, wherein the communication channel variance condition is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval (Cols. 15 lines 55-67, 16 lines 1-7, pilot power variance).”

The Office Action specifically refers to Bayley’s signal strength of a pilot signal as describing or being analogous to Applicant’s communication channel variance condition measured within an adaptive interval, wherein the communication channel variance condition is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval. This analogy is, however, a mischaracterization of Bayley.

First of all, Bayley’s measurement of signal strength of a pilot signal can not be equated to Applicant’s determining primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval because of the following reasons. Signal strength of any received signal/channel represents the magnitude or energy of the signal. As an example, say that the signal strength measurement samples for channel A at time instants t_1 , t_2 , t_3 , and t_4 is [3, 1, 1, 3] and the signal strength measurement samples for channel B at time instants t_1 , t_2 , t_3 , and t_4 is [2, 2, 2, 2]. Applicant’s communication channel variance condition (primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimates) at the same time instants for channel A would be [1, 2, 1, 1.5] and for channel B would be [0, 0, 0, 1]. Meanwhile, Bayley’s signal strength or average magnitude/energy of channel A and channel B would be 2. The given signal strengths in the examples suggest that the channels A and B have similar average signal strength (e.g., an average of 2 across the four time instants), whereas the communication channel variance condition (primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimates) suggests that a channel

variance condition of channel A is higher than a channel variance condition of channel B. Therefore, Bayley's signal strength cannot be equated to Applicant's channel variance condition (primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimates).

Moreover, Bayley also does not suggest *measuring the signal strength over a time period and only gives an average value of the signal strength measured at different discrete time instants*. Bayley's search window cannot be equated to Applicant's adaptive measurement interval. In Bayley, the search window size only determines, relative to the location of the first base station's signal, how far the signal of the second base station has traveled. See Bayley col. 7, lines 29-47. Bayley's search window size is not a measurement period that could be used to determine the variance or dynamic change of a signal over t_1 , t_2 , t_3 , t_4 as in the above example. Applicant's *communication channel variance condition* (primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimates) is determined over an adaptive measurement interval *and inherently reflects the channel condition changes over a period of time*. Thus, Bayley is not applicable to claims 1, 12, and 16.

Applicant respectfully disagrees with the statement in the Office Action page 4, paragraph 1 that states "Gholmiech teaches...establishing, by the mobile station, a headroom value based on the communication channel variance condition (Sections 0009 lines 1-9, 0021 lines 3-7, 0023, 0026-0028)." Gholmiech describes controlling the transmit power of the mobile station to receive the mobile station transmission at a targeted received signal quality by providing closed-loop reverse link power control. In Gholmiech, a radio base station (RBS) asks the mobile station to increase or decrease its reverse link transmit power, if according to the RBS the reverse link transmit power of the mobile station is not sufficient for a required signal quality. Incrementing transmit power, by the mobile station, may implicitly imply decrementing power headroom, at the mobile station. Gholmiech describes power headroom as representing the amount by which the mobile station can increase its transmit power if commanded by the RBS. See Gholmiech, para [0009] and [0023]. Therefore, Gholmiech's mobile station establishes the power headroom, by incrementing/decrementing the transmit power, based on power up/down commands from the RBS, where the power up/down commands are based on the reverse link transmit power of the mobile station determined by the RBS. But Gholmiech's "reverse link transmit power" can not be equated to Applicant's "communication channel variance." This is

also acknowledged by the Examiner on page 4 of the Office Action, which states that “Gholmieh does not teach determining, by the mobile station, a communication channel variance condition.” Thus, Gholmieh, at best, may suggest establishing a power headroom, indirectly, by the mobile station *based on the reverse link transmit power*. But Gholmieh does not show or suggest “establishing, by the mobile station, a headroom value *based on the communication channel variance condition*” as recited by Applicant’s claims 1, 12, and 16.

Applicant also submits that Office Action lacks a proper motivation to combine Gholmieh with Bayley, plus a combination of Gholmieh and Bayley does not teach or suggest all the elements of the claims. Gholmieh discloses a method to help a radio base station (RBS) track the changes of a mobile station’s power headroom, by having the reverse link power control commands being transmitted from the base station to the mobile station and/or by having the mobile station report its headroom at certain intervals and using a differential update during that interval. See Gholmieh paras. [0008]-[0009]. In contrast, Bayley teaches evaluating the signal strength of a pilot signal received at a remote unit. See Bayley col. 15, lines 48-50. Since Gholmieh’s method operates at the RBS, it does not measure signal strength perceived at a remote unit’s end as taught by Bayley. The Office Action’s stated motivation of “for the purpose of decreasing the time required to complete to complete a search of base station signals as taught by Bayley” has no bearing on headroom feedback signaling per Gholmieh. Therefore, it is not reasonable to combine Gholmieh with Bayley, and Applicant contends that the Office Action appears to rely solely on hindsight analysis to piece together elements from a base-station-centric solution (Gholmieh) and a remote-unit-centric solution (Bayley) without a proper motivation to combine and without operative connections between the disparate elements of Gholmieh and Bayley.

Next (assuming for the sake of argument that Bayley showed or taught a mobile station determining a communication channel variance condition), the combination of Gholmieh and Bayley fails to teach or suggest each element of the claims because neither Gholmieh nor Bayley teaches a mobile station using a communication channel variance condition to establish a headroom value as recited in claims 1, 12, and 16.

For the above reasons, Applicant submits that independent claims 1, 12, and 16 and dependent claims 3-4, 7, 13-14, and 17-18 are not obvious in view of the combination of

Gholmieh and Bayley, and therefore requests reconsideration and withdrawal of the rejection of claims 1, 3-4, 7, 12-14, and 16-18 under 35 U.S.C. § 103(a).

Rejection of Claims 5-6, 15, and 19-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publ. No. 2004/0147276 (Gholmieh) in view of U.S. Pat. No. 6,775,252 (Bayley) and further in view of U.S. Pat. No. 6,563,810 (Corazza).

Corazza fails to overcome the deficiencies of Gholmieh and Bayley, because Corazza also does not show or suggest “wherein the communication channel variance condition is at least one of a primary pilot power variance, fading period and fade depth estimate, or a peak-to-average estimate within an adaptive measurement interval” as recited in independent claims 1, 12, and 16. Corazza uses a maximum power which is reduced by the headroom power to provide for power control variations. However, for the case of battery-limited condition, Corazza chooses the lesser power denoted by P(R). P(R) is a transmit value selected for reliable transmission and it does not contain any headroom or margin for power control variations. See Corazza col. 6 lines 30-50.

Dependent claims 5-6, 15, and 19-20 depend from, and include all the limitations of their respective independent claims 1, 12, and 16. Therefore, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 5-6, 15, and 19-20 under 35 U.S.C. § 103(a) as being unpatentable over Gholmieh, Bayley, and Corazza.

Conclusion

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Such action is earnestly solicited by the Applicant. Should the Examiner have any questions, comments, or suggestions, the Examiner is invited to contact the Applicant’s attorney or agent at the telephone number indicated below.

Please charge any fees that may be due to Deposit Account 502117, Motorola, Inc.

Respectfully submitted,

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